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THE DESIGN AND APPLICATION OF ENGLISH ONLINE LEARNING SYSTEM BASED ON BS

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ABSTRACT

Since the inception of the new era, the development of the Internet technology has also promoted the upgrading of electronic equipment. And the online education mode budding at the end of last century has also yielded extraordinary results; especially for English, its online learning system has become more mature because of its needs of more voice communication and training. Taking this as the research object, this paper firstly introduces the related concepts, and then conducts a demand analysis of the system, and finally elaborates the related information about the system structure and database, hoping to provide a reference for the related research.

1. Introduction

The Internet is affecting our work, study and life in all aspects without being noticed. With the deepening of China's economic reform, China's contact with foreign countries has gradually been comprehensive. Under this background, English as the most common language in the world is bound to enjoy a great number of learners. So, how to deal with the demands of so many English learners has become a problem. In another word, most of the English learners are concentrated in the city, so how to learn English efficiently beyond the rush work and life has become a question. Online English learning system as the product of the network has been accepted by the majority of English learning groups for a long time, favored not only the school teachers and students but also social learning groups. In view of this, the educational circles conduct more and more in-depth research on this. This paper takes this as the research object to research the design of English online learning system based on BS architecture and to analyze its practical application.

2. Introduction of BS structure

2.1 The concept of BS structure

The so-called BS structure, the Browser/Server model, is a network structure pattern coming into being after the emergence of the Web page. In this mode, the browser is generally used as the client and the main application software [1]. Thus, the uniformity of this model makes it possible to maintain the normal operation of the client at a small cost; and the placement of its core part on the server has many advantages, the most significant of which is that to a certain extent, it can speed up the system development and reduce the cost of system operation and maintenance. Only a browser is needed to achieve the connection between the system databases.

2.2 The role of BS structure

There is no denying that the BS structure is built on the basis of the CS structure. Because of the puzzling problems of the original CS structure, the program developers have improved it with a three-layer structure replacing the original model [2]. The emergence of BS structure is accompanied by the development of the Internet, because BS structure is essentially a kind of CS structure. We can consider the former as a special case of the latter being adapted to the Internet environment.

The continuously developing Web technology is the main reason for the

rapid development of the BS structure. Previously, only the development of several kinds of complex software can achieve the powerful functions of the client. And after the web browser technology came into being, all the functions can be achieved by the combination of the multiple script languages of the browser and the ActiveX technology coupled with a general browser. From this perspective, BS structure is beneficial to the development of software systems with lots of money saved [3].

BS structure has many advantages, but the key point and also the most praiseworthy one is that the system developed with this structure can escape the pace and time limitations so that people can operate on the computers in any place with access to the Internet without installing professional software. Therefore, the system based on BS structure can achieve a wider range of development.

2.3 Characteristics of BS structure

BS structure has three main characteristics. First, its maintenance is simple, and the regular update is easy, providing convenience for the system management staff. The system managers of systems without BS architecture has to run among the clients, but those of BS structure systems only need to manage and maintain the server to control everything [4]. Second, the development of BS structure costs less and has more options for servers. When using BS structure software, people only need to install it on a Linux server, and its usage is free from the influence of the operating system of the computer itself. Third, the database and the part belonging to the client originally of the BS structure are concentrated on the server, leading to the heavy load of the server, so its collapse may cause very serious consequences. Therefore, it is necessary to equip it with a database storage server [5].

3. Demand analysis

The system designed in this paper is to provide an online English learning platform for learners. Therefore, the system should be able to meet the following functional requirements. The learners can complete registration in accordance with the established procedures and log in their accounts; if the user name and password are correct, they can choose the courses on their own for learning. Also, once the appropriate courses are selected, the related courseware and other information can also be downloaded for free. After completing a period of learning, the learner can log in the system to complete and submit the homework on the system. After a period of time, they can log in the system to inquire the results. And the teachers also can test the students on this system.

3.1 The functional requirements of the target system

The system is a design based on BS, so the user completes the registration and login after logging into the homepage through the browser. Teachers and students are the two most important subjects of the English online learning system, playing an important role in the system. Therefore, the system is designed with a number of functional modules centering on the role of teachers and students, the structure of which is as follows:

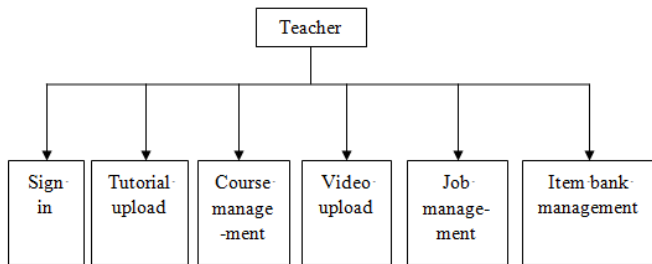


Figure 1: Teacher function

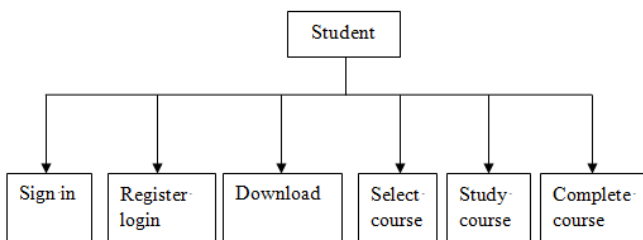


Figure 2: Student function

3.2 The performance requirements of the target system

Performance requirements refer to the requirements of time and space. In terms of time, the system should respond in 10 seconds when the students use the query function, and the updates of the system should also be within 10 seconds. In addition, it should respond in at most 10 seconds when the user uses the remote data transfer function. From the perspective of space, the number of user terminals supported by each server should be calculated according to the server loads; the system can support 1000 users online at the same time, and the system is capable of handling a maximum of 100 documents, related records or tasks. The performance requirements of users during usage are analyzed to lay the foundation for the design and application of the system, and the performance requirements are listed below:

Table 1: Performance requirements list

Number	Performance name	Performance description	Input content	Output content
1	Remote data response time	Click on the video playback response time	Add video click play	Play video upload
2	Update response	Upload, query, delete, the corresponding operation	Response operation result	Response after the output of the correct results
3	Parallel operation	View the number of users that can be carried by the user in parallel operation	Statistics up to online number	View server load

3.3 Other demands of the system

Apart from achieving the intended target and meeting the performance requirements, the system must also meet some requirements in the interface, security, reliability and flexibility. For example, the interface system as the means for direct dialogue and contact with the users is of great importance [6]. Generally speaking, the system interface should be in a simple style with clear and distinct text and pictures, and the entire interface should have unified pattern without obvious difference in style.

The system should be equipped with input devices including keyboard and mouse and output devices including display, printers, and audio. The design of the display interface has referred to the design of the IE browser with the display mode being 1024*768.

In terms of security, the system should have the ability to resist the attack of the hacker; with regard to reliability, the system should be stable and consistent so that the private information of the users can be well protected, and during the remote data transmission process, not only the speed but also the quality should be guaranteed to prevent the interrupt or lost of the data [6]; as for flexibility, the system can improve itself timely with the maturity of technology and the user feedback. If the login password is forgotten, the user can find it through the preset questions before setting the password; and the password and the user name can be modified according to the users' requirements [7].

4. The detailed design of the system

4.1 The main directory of the system

To make the variables used in the design process and the data in database clearer, this paper respectively names the variable and the database in accordance with the relevant provisions. The naming criteria used are:

The variable object is named with the methods for variable objects. If the database connection variables are global variables, it should be named with English words or English words followed with an underline; if the object is a class, it should be named with the word or initial capital letters; if the object is a constant, it should be named with capital letters.

If it is a database object, the table name in the database should be the name of the database plus English words; the field should be named with the table name plus the lowercase English words; the index should be named with the column name plus index; and the view should be named with uppercase English words.

Table 2: System main table of contents

Folder	File name	Function
Scms	Install	Storage installation file
	Include	Storage public file
	Ckeditor	Memory editor file
	Images	Storage picture
	Video	Store and upload videos
	Admin	Storage manager module file
	Teacher	Storage teacher module file
	Student	Storing student module file
	Upload	Storing and uploading data
	Templates	Files HTML templates
	Index.php	Website home page
	Login.php	Login page
	Paly.php	Video menu page
	Realplayer.php	Video play page
	Register.php	Registration processing page
Register.html	Registration page	

4.2 The design of system modules

The online English learning system mainly includes four modules: the backstage management, teachers, students and examination. The backstage management module as a very important part of the whole system is mainly fused to delete or add users. The teachers module has many functions: from the perspective of teaching, this module can be used to realize accurate grasp of the syllabus, complete the editing work of the teaching and upload related courseware data to the network server for users to download [9]; from the aspect of curriculum, this module can be used to add or delete the courses including the video lectures; in term of test base management, the teachers can select

questions types, add, modify and delete relevant questions; as for assignments, the teachers can view, correct and delete the work accomplished by the students through the browser. The student module mainly includes personal information management, course management and assignment management, the functions of which are similar to those of the teachers module except for the authority acquired after login with different identity [10,11].

4.3 The structure design of the database

The analysis of the system database shows that in this English online learning system, students have the freedom of choice; many students can select the course of the same teacher, and a student can choose the courses of several teachers according to their own time arrangements; but for the same course, only one teacher can be selected. A teacher can teach multiple courses, and each course has multiple sections with each having a corresponding assignment with more than one question types.

Table 3: Database table name list

Number	Chinese table name	Table name in English	Table function description
1	User table	USER	Store user information
2	Student table	STUDENT	Storing student information

3	Teacher table	TEACHER	Storing teacher information
4	Curriculum schedule	COURSE	Stored curriculum information
5	Selected course list	SELECT_COURSE	Selected courses for students
6	Chapter table	CHAPTER	Storage course chapter information
7	Title table	QUESTION	Types of information storage
8	Job table	ASSIGNMENT	Types of information storage
9	Job score sheet	ASSIGNMENT_MARK	Storage job score information
10	Answer sheet	QUESTIONS_ANSWERS	Storing student answer information

Table 4: Student Watch

Serial number	Field Chinese name	Field English name	Type, width, accuracy	Value constraint	Whether empty	Default value	The primary key / foreign key	Whether index
1	Student ID	student_id	integer	only	No		Primary key	Yes
2	User name	username	character	only	No		foreign key	Yes
3	Real name	truename	character					
4	Gender	sex	character	2 bit				
5	School	school	character					
6	Department	department	character					
7	Class	grade	character					
8	Head portrait	avatar	character					
9	Telephone	phone	character	30 bit				
10	Mailbox	email	character	only				

Table 5: User list

Serial number	Field Chinese name	Field English name	Type, width, accuracy	Value constraint	Whether empty	Default value	The primary key / foreign key	Whether index
1	User ID	user_id	integer	only	No		primary key	Yes
2	User Name	username	character	only	No		primary key	Yes
3	Key	pwd	character	6-20bit	No			No
4	Identity	identify	integer	2bit	No			No
5	mailbox	email	character		No			Yes

4.4 Database connection

SQL statements can be executed by JDBC (Java Data Base Connectivity), a database connection based on the Java language. Multiple databases with different mutual relationship can be accessed via JDBC, which is essentially a Java API, composed with classes and interfaces written with Java language. The advantage of JDBC is that the program designers have a standardized API, according to which the interfaces can be established on a higher level. In this database connection, program developers have no need to write piles of programming to access every database, and only a program under the standard API architecture is need, which will send a SQL statement to the database to be accessed to complete the database calls. In addition, the program has a strong compatibility; if the basic platform changes for some reason, this program can continue to run, which is the biggest advantage of it.

The Java database connection system can connect the application programs of the system with its huge databases, realizing the certain connection between the two. Meanwhile, the connecting system is also

the standard system for the connection of the Java language program with the database. Therefore, JDBC have different meanings for different people. From the perspective of the developers, it is the API; for merchants providing services for the connection between the application program and the database, it is a kind of interface. After the database in the English online learning system is established, this connection system can be used to strengthen the link between the database and save a lot of spending and labor.

5. Conclusion

The online learning mode in the network era has been more and more popular with the majority of learners, so this paper conducts a research on the English learning system based on the BS structure. The paper firstly defines the concept of BS structure, and then analyzes the functions and the performance to be achieved by the system, and finally divides the system into several modules with its data dictionary written out, hoping to achieve the online English learning system in this language environment. The paper has designed a practical one which can provide

some reference for researchers in relevant fields and people who want to improve themselves through online English learning system. The paper still has many shortcomings, including the incomplete implementation of the system and the further development of the sub-system of students' payment management, examination, student employment management and student message board [12]. Also, the system is weak in universality, so it needs further research and improvement if you want to use it for other schools; and it will need redesign of the database to be applied to all network teaching systems in some colleges and universities. Through this design, the author realizes that we should carry out a thorough research on the network security problem and the data sharing problems faced by cross-platform operating system so as to improve the operating system to make the question bank more comprehensive. Such online learning system is not only a tool to manage students' learning process; it should also be able to be applied in the measurement and evaluation of the teaching process to promote the communication between teachers and students.

Reference

- [1] Shen D. The Design and Implementation of the New Online English Learning System[C]// International Conference on Education Technology, Management and Humanities Science. 2015.
- [2] Qingli, Zhao. Design and Application of English Learning System based on B/S Structure[J]. International Journal of Technology Management, 2013:97-99.
- [3] Xu A, Xu W, Wu H. The online english learning system design based on B/S structure[C]// Advanced Research and Technology in Industry Applications. IEEE, 2014.
- [4] Zeng C Q, Da L I. The Design and Application of Self-learning and Self-check System of Medical Immunology Based on ASP Online[J]. Researches in Medical Education, 2008.
- [5] Fang LiXia. English Course Online Learning System Design Based on MVC[C]// Sixth International Conference on Intelligent Systems Design and Engineering Applications. IEEE Computer Society, 2015:372-375.
- [6] Hsu L L. The Design and Application of A Simulation-Based Mobile Learning System: An Empirical Study on Learning Outcome[J]. Journal of Occupational Medicine Official Publication of the Industrial Medical Association, 1978, 20(7):452-457.
- [7] Wu Y. The Building of Online English Learning System Based on Web Service[J]. International Journal of Digital Content Technology & Its Applic, 2013.
- [8] Wang Z J, Tang X. Design and Research on Adult English Learning System Based on the Mobile Technology[J]. Advanced Materials Research, 2011, 403-408:1548-1551.
- [9] Pradana P. Design and Development of Online Learning System for Disaster Relief Based on E-Earning 2.0[J]. Undergraduate Theses of Information System Department.
- [10] Kim B S, Kim J H. Design and Application of Learning Algorithms based on Computational Thinking for Changes in Prospective Elementary School Teachers' Perceptions about Computer Science[J]. 2012, 24(4):528-542.
- [11] Li B S, Hu J F. Research the Ceramic Design System Based on Sketch[J]. AdvancedMaterials Research, 2013, 694-697:2278-2281.
- [12] Theja B S, Rajasekhar A, Abraham A. An optimal design of coordinated PI based PSS with TCSC controller using modified Teaching Learning based Optimization[C]// Nature and Biologically Inspired Computing. 2013:99-106.

